

Measurements of the type specimen of *Carpophaga Finschii*:—Total length of skin 12 inches, wing 8·2, tail 4·8, tarsus 1, mid toe (s. u.) 1·2, hind toe (s. u.) 0·65; bill from forehead 1·15, from the nostril 0·6, from the gape 1·2.

Remarks.—Several of the outer tail-feathers and the centre two are scarcely half-grown; but from what can be seen of them, they appear to be of the same colours as exhibited in the remainder; the under wing-coverts are ashy, with bluish-ashy margins, of the same tint as that of the back of the neck. The total length of the bird, when alive, was about 14·5 inches.

MOLLUSCA OF H.M.S. 'CHALLENGER' EXPEDITION.—Part XVI.
By the Rev. ROBERT BOOG WATSON, B.A., F.R.S.E., F.L.S.

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[Read November 16, 1882.]

Fam. FISSURELLIDÆ, *Risso*.

ZEIDORA, *A. Ad.*

| PUNCTURELLA, *R. T. Lowe*.

Zeidora is classed here under the Fissurellidæ in accordance with the view of its author, from which, in the absence of the animal, it would be rash to depart. It seems, however, rather an internal than an external shell; and its true place will probably be found among the Opisthobranchia, perhaps in the neighbourhood of *Pleurobranchus*. *Crepidmarginula*, a genus proposed by Prof. Seguenza for a Pliocene fossil of great rarity, is *A. Adams's Zeidora*.

In reference to the Puncturellas, the species hitherto known are very few. Adams in the 'Genera' (vol. I. p. 451) enumerates only seven; and of these, *P. princeps*, Mighels and Adams, and *P. galeata*, Gould, are certainly the same as *P. Noachina*, L.; while others probably need revision. Dr. Gwyn Jeffreys, in his 'Valorous' Report (Ann. & Mag. N. H. Mar. 1877, p. 232) describes one new species, and refers to three others from the 'Porcupine' dredgings, of which two are Sicilian Pliocene fossils described by Seguenza. Mr. W. H. Dall, in his "Report on the Blake Dredgings" (Bull. Mus. Comp. Zool. Harvard Coll., Camb., Mass., Aug. 25, 1881, pp. 75, 76), has described two new and very interesting species from the Gulf of Mexico. One of the species from the

'Challenger,' *P. craticia*, Wats., seems the largest yet described. Some of the others, though small, are remarkable for form or sculpture, or both; all, unfortunately, are represented by but a few specimens. In addition to the Stations referred to below, only three others afforded specimens of *Puncturella* to the 'Challenger'; these are:—St. 312, in the Straits of Magellan; St. 145, between the Cape and Kerguelen; and St. 149, at Kerguelen; and at all these places the species obtained was our British *P. Noachina*, L.

Looking at these facts, one is struck by the very large number (no fewer than eight) of new species from one locality. Further, if we take in connection with this the poverty of specimens from that locality, and also the rarity of the genus in the dredgings in general, we can hardly doubt that the true home of the genus has not yet been found.

Gen. ZEIDORA, *A. Ad.*

ZEIDORA NAUFRAGA*, n. sp.

St. 24. Mar. 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. Off St. Thomas, North of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Shell.—White, delicate, depressed, oblong, pointed behind, with a minute short apex, rounded and cleft in front, with a broad flat keel bearing the old cleft-scar and extending the whole length of the shell: the enormous mouth is closed behind by a crepidula-like partition. *Sculpture*. Longitudinals—from the apex to the cleft across the middle of the back runs a broad raised keel, flat on the top, where it is scored by the minute delicate, sharp, prominent, close-set, but not contiguous scars of the old cleft; on either side it is bordered by a sharp marginal line: from these marginal lines branch off feeble irregular diverging threadlets, between which, as they go wider apart, others arise; the intervals between them are two to three times the breadth of the threadlets. Spirals—strictly speaking there are none, but the whole surface is scored at right angles to the longitudinals with a series of threadlets, very similar in form but rather more closely set; these radiate from the apex and indicate the old mouth-edges. *Colour* porcellaneous white, which is dead on

* The name was suggested by the resemblance of the shell to a half-decked boat which has been shipwrecked.

the threadlets, but almost translucent elsewhere from the extreme thinness of the shell. *Apex*—at the posterior end of the shell there is a narrow, rounded, prominent beak, within which, a little bent to the right and projecting slightly above the margin of the mouth, is the minute apex of one whorl. *Mouth* oblong. *Margin* minutely denticulated by the ends of the ribs; cleft in front by a strong, parallel-sided, blunt-ended fissure; behind, it is peculiarly patulous, being markedly bent outwards from the line of attachment of the septum, this bending being strongly shown on the outside of the shell. *Inside* glossy, smooth; a strong depression corresponding to the exterior keel extends from end to end of the shell. *Septum*—a little way within the margin, and deepest at the end, is the short oblique septum, which is faintly arched, with a concave edge in front. L. 0.38. B. 0.2. H. 0.12.

The present species, though somewhat chipped, is of great beauty. It differs from *Z. calceolina*, A. Ad., which is rudely cancellated, and is also wider and more depressed. It is liker *Z. reticulata*, A. Ad.; but is larger, deeper, has the old cleft-scar raised on a projecting ridge which forms a strong internal furrow, has the beak sharper and more projecting; the form is more oblong and more pinched-in at the sides; the sculpture-lines are much finer and less regular than in that species.

[Since the above was in print, Prof. Seguenza has had the kindness to send me a careful sketch of the solitary specimen which exists of his *Crepidmarginula reticulata* from the Astian or Middle Pliocene of Rhegium in Calabria (see 'Formazione Terz. de Reggio-Calabria,' p. 273). It proves, as I inferred from the description, to be a *Zeidora*; and as in that genus *reticulata* is a specific name already used by A. Adams, I would propose *Z. Seguenzæ* for the Calabrian fossil. As compared with *Z. naufraga*, this Calabrian fossil is much higher in front, much lower behind, where also it is much broader and rounder, with a less pinched-in apex; it is more widely ribbed, the scores on the scar are wider apart and coarser; internally the edge is more coarsely crimped, and the septum is very much larger, being much more prolonged forward, and is horizontal instead of oblique; the old cleft-scar, too, is not raised on a projecting ridge, and does not form any internal furrow.]

Gen. PUNCTURELLA, *R. T. Lowe.*

[Since the publication of this group I have had the opportunity, through the kindness of Dr. Gwyn Jeffreys and of Prof. Seguenza, of examining some species described by them or in their hands; and I am satisfied that *P. craticia*, Wats., is *Rimula asturiana*, Fischer, of the 'Travailleur' Expedition, 1880; that *P. tuberculata*, Wats., is *Rimula granulata*, Seg., an Upper-Miocene fossil; that *P. plecta*, Wats., is *P. clathrata*, Jeffr., of which, however, as an unpublished species mine must, to my regret (for the species has long been differentiated by Dr. Gwyn Jeffreys), take precedence; that *P. acuta*, Wats., is the *P. profundus*, Jeffr., not, however, a *Fissurisepta*, Seg., for it retains its apex, nor indeed a simple *Puncturella*, for its delicate septum is a broad straight lamina extending direct from side to side of the shell, and advancing obliquely a considerable way down the interior of the shell (see 'Valorous' Gastropoda, Ann. & Mag. N. H. Mar. 1877, p. 232); and that *P. acuminata*, Wats., is one of the varieties of *Fissurisepta rostrata*, Seg., an Upper-Miocene fossil. The identification of these West-Indian mollusks with Miocene fossils and with a species living in the Bay of Biscay (600 to 1100 fms.) is obviously of much greater interest and importance than the mere multiplication of new species.]

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| 1. <i>P. (Cranopsis) asturiana</i> , Fischer. | 6. <i>P. plecta</i> , n. sp. |
| 2. <i>P. (C.) granulata</i> , Seg. | 7. <i>P. profundus</i> , Jeffr. |
| 3. <i>P. agger</i> , n. sp. | 8. <i>P. oxia</i> , n. sp. |
| 4. <i>P. brychia</i> , n. sp. | 9. <i>P. sportella</i> , n. sp. |
| 5. <i>P.</i> n. sp. (?) | 10. <i>P. (Fissurisepta) rostrata</i> , Seg. |

1. PUNCTURELLA (CRANOPSIS) ASTURIANA, *Fischer* [CRATICIA, n. sp.].

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Fischer, 'Journal de Conchyliologie,' 1882, p. 51 (*Rimula*).

Shell.—Grey, thin, depressed, oval, considerably broader in front than behind; with straight conical sides, convex in front and concave behind, where in particular the margin is a little patulous: it is scored with sharpish ribs and concentric threads; the lanceolate slit is large and very low placed. *Sculpture*. From the point 30 to 40 sharpish ribs radiate out, in whose interstices as they diverge smaller ones appear, which finally rival

the first, so that toward the margin 100 to 130 can be counted. The one in continuation of the generic puncture is slightly raised, double, and partially split, especially above, giving the impression of a suture; these are crossed by concentric threads of almost equal strength with the ribs, in crossing which they rise into knots which sharply roughen the surface. *Colour* brownish grey, but the specimen is somewhat blackened and discoloured*. *Apex* a good deal depressed, curled-in and projected backwards exactly in the middle line of the shell, the minute tip just standing out on the right, forming a spire of $2\frac{1}{4}$ whorls. *Slit* very low, having its centre quite two thirds down the front slope; it is lanceolate, square behind, broadening, a little irregularly, in the middle, and slowly contracting to a small narrow point in front: the old scar is a shallow furrow with sharp sides; and the bottom is scored across with old edge-lines. *Margin* thin, toothed, and crimped on the edges by the ribs. *Inside* porcellaneous, somewhat indented on the line of the ribs; the apex is deeply hollowed, a deepening and widening groove extends from the margin to the slit, which is shortly covered by the regularly curved, strong, unbuttressed septum. L. 0.8. B. 0.62. H. 0.32.

My own observations entirely confirm the remarks of Mr. W. H. Dall ('Blake' Dredgings, Bull. Mus. Comp. Zool. Harvard Coll. vol. IX. p. 76), that the presence or absence of buttresses to the septum is a feature that cannot be taken as a basis of distinction, since it is not constant in the same species.

In descriptions of species under this genus a good deal of confusion would be avoided if it were remembered that the fissure lies in front of, not behind, the apex. The whole of Gould's descriptions of *Rimula* (U.S. Expl. Exped., Moll. pp. 368-372, figs. 475-478) apply to this genus—a fact one would hardly recognize from his figures of the animals, in which the tentacles are represented of extreme length and fineness.

The 'Challenger' species is exceptionally large. In outline it somewhat resembles *Rimula cognata*, Gould. My remembrance of this species is that it is quite small; but Gould figures it large, and gives no indication of size beyond saying that it is small. *Puncturella craticia* further differs from it in being much rounder and lower, with a more depressed and reverted apex, and a slit much more remote from the top.

* The colour of living specimens from the Bay of Biscay proves to be very much the same.

2. PUNCTURELLA (CRANOPSIS) GRANULATA, *Seg.* [TUBERCULATA, n. sp.]

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Seguenza, 'Palæont. Malac. Terr. Terz. di Messina,' p. 14, pl. v. f. 6 (*Rimula*).

Shell.—Porcellaneous white under a meagre yellow epidermis, rather thin, narrow, broader in front, oblong, with a depressed and reverted top and incurved apex; the side slopes are steep and slightly convex, the front edge is long and very convex, the back slope is concave in consequence of the overhanging apex; the small close-set radiating ribs are beaded with contiguous small rough tubercles; the long narrow fusiform slit rises very high, and is remote from both apex and margin.

Sculpture. From the apex over 100 small irregular and unequal riblets radiate to the margin; they are closely beset with small rough tubercles like threads; there are no concentric threads, but a few unequal lines of growth can be seen; the riblet which runs from the slit is double, with a minute furrow between the riblets; its direction is not quite constant in different specimens.

Colour: the shell is pure white, porcellaneous under the thin straw-yellow membranaceous epidermis, which is rather caducous. *Apex* very much reverted and depressed so as to stick out backwards bluntly, but prominently in the mid line of the shell; the minute smooth white tip stands out on the right with considerable distinctness, completing a regular spire of $2\frac{1}{2}$ whorls in all. *Slit* stands very high, its upper end rising to the crest of the shell, though still remote from the apex; it is long, narrow, and deep, and tapers off at both ends; the old scar is deep and narrow. *Margin* thin and sharp, toothed all round, but hardly crimped within; behind it is very patulous, but elsewhere the internal slope is very steep; the two sides are very straight and converge backwards. *Inside* porcellaneous, deeply hollowed into the apex; a sharp little furrow that resembles a crack runs up from the margin to the slit, which is almost quite covered in all its length by the patulous but small and flatly arched unbuttressed septum. L. 0·31. B. 0·19. H. 0·15.

This species is peculiarly long and narrow, and roomy within from its steep walls and blunt apex. Its sculpture, too, is very striking.

3. PUNCTURELLA AGGER*, n. sp.

St. 24. March 25, 1863. Lat. $18^{\circ}38'30''$ N., long. $65^{\circ}5'30''$ W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Shell.—Small, porcellaneous, oval, broader in front; side slopes straight, the front convex, the back concave, rather high, but with the top depressed and thrust out backwards, yet little projecting, the apex being flattened out on the posterior slope; there are many not crowded slight radiating ribs set with stumpy prickles; the long and lanceolate slit is on the crest, and from it a ridge runs down the front slope. *Sculpture*. The riblets are very slight, but are made distinct by the little triangular prickles which pretty closely stud them; these prickles more irregularly and remotely tally with feeble lines of growth; the ridge down the front slope is small, and is crowned with two of the riblets parted by a narrow furrow; these riblets along the slit rise into sharp laminæ. *Colour*: the shell is porcellaneous white, with a slight ruddy tinge. *Apex* somewhat depressed and shortly projected backward, curling in on the central line of the shell, but with the extreme tip flattened-out on the posterior right slope; there are $2\frac{1}{4}$ whorls in all. *Slit* lies high on the front slope, distant from the apex about once and from the margin about twice its own length; it is long and narrow, bluntly rounded at the upper end, and produced in front to a long sharp point. *Margin* is thin and not fretted with the rib-ends. *Inside* glassy, deeply hollowed into the apex, feebly rayed, and having the rays picked out with bright specks corresponding to the external prickles: a long shallow furrow, bordered by a minute ridge on either side, runs widening upwards from the margin to the slit, which is covered in all its length by the somewhat contracted, sinuous-edged, cross-scored, straight, glassy septum, which arches in to the apex. L. 0.17. B. 0.13. H. 0.09.

This species has somewhat the form of *P. tuberculata*, but is not so compressed, and the sculpture is quite different.

4. PUNCTURELLA BRYCHIA, n. sp. (*βρύχιος*, deep sea.)

St. 47. May 7, 1873. Lat. $41^{\circ}15'N.$, long. $65^{\circ}45'W.$ Off Halifax, Nova Scotia. 1340 fms. Mud.

Shell.—Very small, porcellaneous, translucent, oval, very

* So called from the little ridge that runs down from the front slope of the shell from the slit.

slightly broader in front; its side slopes are slightly, its front slope extremely convex, its back slope is short and flattened and very much overhung by the protuberant apex; there are sparse and distinct riblets. The slit is short and coarse, though not large; and from it a broad round ridge trending to the right runs out to the margin. *Sculpture*. The riblets are neither strong nor sharp; but they are distinct, rising as little round threads from the flat surface, and being parted by broad intervals, rather strongly pitted by the little specks of the genus; the ridge which runs down the front of the shell is the full breadth of the slit; the concentric striæ are mere slight irregular lines of growth. *Colour* clouded, porcellaneous white under the brownish caducous epidermis. *Apex* very much curled in and bent down, but not spread out on the backward slope; the minute extreme tip is exerted and projects; the whorls are $2\frac{1}{4}$. *Slit*: the open part is short and narrowly oblong, and as broad in front as behind, from which point the old scar runs up the crest. *Margin* thin, patulous, especially behind, crenulated by the riblets. *Inside* porcellaneous, deeply hollowed into the apex; scored by the rib-furrows, of which the one in front is very strong, particularly near the slit, which is rather closely covered by the strong, slightly arched septum, which has a retracted edge and is unbuttressed. L. 0·18. B. 0·12. H. 0·1.

In the animal the eye-peduncles are present; but no eyes are visible; the pedal papillæ are very small, as is also the funnel-shaped process leading to the shell-slit.

This species in general form is a good deal like *P. agger*, but is more tumid and higher; the apex and sculpture are very dissimilar. Than *P. conica*, d'Orb. (*Rimula*), which is much of the same size, *P. brychia* has the apex much more turned over; the form is broader and much more depressed.

5. PUNCTURELLA n. sp. (?)

Sept. 7, 1874. Torres Straits. North of Australia. 3-11 fms.

Sept. 8, 1874. Torres Straits. Flinders Passage, North of Australia. 7 fms.

St. 186. Sept. 8, 1874. Torres Straits. Wednesday Island, North of Australia. 8 fms.

St. 187. Sept. 8, 1874. Torres Straits, Cape York, North of Australia. 6 fms.

This species, which I believe to be new, is peculiar from its

high, perpendicular, roundly oval form, ending in a minute reverted, hardly in-curved, prominent tip which overhangs the base; the longitudinal striation consists rather of corrugations than ribs; and the lines of growth are slight and unequal. The slit, which is small and oval, arises simply from the removal of the crest. The inside is corrugated like the outside, the opening runs up and backwards into the apex; the septum, which is flatly arched, lies very close to the front wall of the shell and comes far down.

I have not described the species, because none of the specimens are in very good condition. They are also all very small; but the species is probably a small one, judging from the minute size of the embryonic shell. Coming from a locality visited and carefully dredged by the 'Chevert' Expedition, the species might be expected in the lists of that expedition given in the N. S. Wales Linn. Soc. Proc. 1876-78. I have failed to find it there; but some other explorer of that difficult record may be more successful.

6. *PUNCTURELLA PLECTA*, n. sp.

St. 24. March 25, 1873. Lat. $18^{\circ} 38' 30''$ N., long. $65^{\circ} 5' 30''$ W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Shell.—Small, porcellaneous, oblong, scarcely perceptibly broader in front; its slopes are conical and straight till close to the top, which projects backwards but little; there are strongish ribs and still stronger concentric threads; the slit is short and broad. *Sculpture*. There are about 35 strongish rounded riblets with feebler ones between, bringing up the total number to 60 or 70; overlying these, and forming minute knots at the crossings, are rather stronger, concentric, rounded threads, giving to the surface the wattled appearance from which the name is taken. *Colour* faintly brownish grey. *Apex* rather coarse, curled in, but very little reverted or flattened; there are just two whorls in all. *Slit* oblong, being short and broad; as seen from without, one half is open leading into the interior, the other is closed by the very curved septum. *Margin* crenulated and crimped by the ribs. *Inside* glassy, blunt at the top, not being hollowed into the apex, strongly furrowed by the ribs, less so by the concentric threads; there is no anterior furrow: seen from within, the slit is semi-oval, and the strong septum is excessively short and straight and

is almost perpendicular; from it a slight callus encircles the opening of the slit. L. 0·25. B. 0·16. H. 0·13.

This species in form somewhat resembles *P. agger*, but is more long and narrow; the sculpture and slit are very markedly, and the apex unmistakably, different. In all these respects it differs from *P. Noachina*, L., to the young of which it has a vague resemblance. That species is also in all stages of growth narrower in front than behind. I failed to recognize either the white or transparent specks, one or other of which are so generally present in the Fissurellidæ.

7. PUNCTURELLA PROFUNDI, *Jeffr.* [ACUTA, n. sp.].

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Gwyn Jeffreys, 'Valorous' Gastropoda, Ann. & Mag. N. H. Mar. 1877, p. 232*.

Shell.—Small, thin, roundly oval; the front slope is slightly convex, the others still more slightly concave; the top, of which merely the extreme tip is incurled, projects upwards and a little backwards in a point which is sharpened by the crater-like hole of the slit close in front; minute riblets closely beaded score the surface; the slit is large and round. *Sculpture*. There are very many radiating riblets, which are sharp and distinct but very minute; the surface is also delicately fretted with fine concentric undulations, which in crossing the riblets rise into sharp little contiguous tubercles, but in the narrow intervals are almost invisible. *Colour* frosted glassy-white. *Apex* fine, sharp, prominent, projecting upwards and backwards, with only the extreme tip (which is very small) incurled and slightly turned round; there are fully two whorls. *Slit* is a largish round hole with a pointed prolongation backwards; it lies close in front of the tip, and cuts away the natural top of the shell. *Margin* excessively thin, patulous all round, not crimped. *Inside* glassy; a very small hollow runs into the apex; the lines of the outside ribs are just perceptible; there is no anterior furrow; the slit, as seen from within, is round, and is very little interfered with by the short, thin, triangular, straight-edged, little-oblique septum. L. 0·21. B. 0·16. H. 0·14.

* Dr. Gwyn Jeffreys mentions that this species was also got by the 'Porcupine' in 1870 off the coast of Portugal in from 740 to 1095 fms.

This species extremely resembles *P. profundus*, Jeffr., especially in the shape of the slit and apex and in the general style of sculpture. In form, however, the West-Indian species is lower, and has the whole margin more spread out, so that while the top of the cone is similar, the profiles of the slopes all round are much more concave; the radiating striæ are much sparser; the tubercles on these are smaller and fewer; the concentric striæ are much weaker and less continuous. The internal septum is a little longer and more oblique, and is a little nearer the front, so that the slit is more covered. The apex is so very like as to make me doubt whether a fuller series of specimens might not supply connecting-links between the two forms. And yet even in the apex there are divergencies. Dr. Gwyn Jeffreys (*l. c.*) says that *P. profundus* has "the beak twisted to the left." The tip is bent over to the left so as to lie obliquely on the posterior slope; but the minute embryonic apex lies toward the right hand of the observer, the slit being in front. In the 'Challenger' species the apex is a very little larger, and the spire has about $\frac{1}{4}$ of a whorl more, the earlier rate of increase is slower, and the extreme tip is not so much immersed and is a little more convex. The texture of the shells, too, is different; and, finally, the six 'Challenger' specimens in all these respects agree with one another. On the whole I believe the species to be distinct, but they are certainly very closely allied. [I have now revised this opinion, and united them.]

8. PUNCTURELLA OXIA, n. sp. (ὄξίς, sharp.)

St. 24. March 25, 1873. Lat. $18^{\circ} 38' 30''$ N., long. $65^{\circ} 5' 30''$ W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Shell.—Very small, thin, oval, narrowed in front, depressed; its slopes are straight at the sides, slightly and regularly convex in front; merely the extreme tip is curled in, and the top projects sharply upwards and backwards immediately in front of the break of the slit; the surface is closely dotted with minute tubercles; the slit is rather large and round. *Sculpture*. There are neither ribs nor concentric lines, but the surface is pretty closely dotted over with minute rough tubercles, which are arranged in somewhat interrupted and irregular zigzags. *Colour* translucent, and at the tubercles transparent. *Apex* incurved and turned back, but not bent down; there are 2 whorls. *Slit*: there is a largish

round hole obliquely cut off from the top, and prolonged backwards into a point. *Margin* very thin, patulous, not crimped. *Inside* glassy; a very small hollow runs up into the apex; the surface is scored with many irregular, minute scratch-like white threads, which are more perceptible on a slightly worn than on a fresh specimen; there is no anterior furrow: the slit, as seen from within, is round, and is very little interfered with by the short, thin, triangular, straight-edged, almost perpendicular septum. L. 0·14. B. 0·1. H. 0·07.

This species has some features of resemblance to the last, but is flatter and in sculpture is quite different.

9. PUNCTURELLA SPORTELLA, n. sp.

St. 24. March 25, 1873. Lat. 18°38'30" N., long. 65° 5' 30" W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Shell.—Very small, strongish, oblong, with straight slopes before and at the sides, and markedly concave behind; the apex is very small, and it alone projects backwards; the surface is finely cancellated; the slit is lozenge-shaped. *Sculpture*. There are very many slightly irregular, coarsish, radiating riblets crossed by concentric threadlets, which are rather finer and closer but somewhat more irregular, and which form minute knots in crossing the riblets: from this sculpture results the basket-work appearance from which the name of the species has been adopted. *Colour* white, with a faint tinge of ruddiness. *Apex* is exceedingly minute; and it is the little embryonic spiral alone which projects, the entire number of whorls is only $1\frac{3}{4}$. *Slit* roundish, but acute in front, and (where closed by the septum) behind drawn out into a sharp point so as to be lozenge-shaped when viewed in its entire length. *Margin* straight on the sides, scarce appreciably broader behind than before; the edge is bevelled off so as to be quite sharp. *Inside* glassy; feebly marked with the ribs which, as well as the concentric threads, shine through as transparent; the opening up into the apex is narrow and deep, but not pointed; there is no anterior furrow; the slit, as seen from within, is roundish pointed in front, and truncated behind by the short, thin, triangular, straight-edged, little-oblique septum. L. 0·12. B. 0·08. H. 0·06.

This beautiful species is not improbably full-grown, the very small apex seeming to indicate that the species is in its own

nature minute. In outline it somewhat resembles *P. tuberculata*; in sculpture it has relations with *P. craticia* and *P. acuta*, in both respects it may be compared with *P. plecta*, but is unlike them all, and may be readily recognized by its minute apex.

10. PUNCTURELLA (FISSURISEPTA) ROSTRATA, *Seg.* [ACUMINATA, n. sp.].

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. Off St. Thomas, north of Culebra Island, Danish W. Indies. 390 fms. Coral-mud.

Seguenza, 'Pal. Malac. Terr. Terz. di Messina,' p. 10, pl. v. f. 3.

Shell.—Very small, thin and high, ovate, with slightly impressed sides, glassy, dotted in regular oblique-curving lines, with high, blunt, minute glassy tubercles; the side slopes are high and straight, the front edge faintly convex, the back slope slightly concave; there is no embryonic apex; and the slit is a round hole parallel to the base. *Sculpture*. The surface of the shell is glassy, but is dotted with minute tubercles which are generally parted by more than their own diameter, and run in very regular oblique sweeps parallel to one another. *Colour* transparently glassy, the tubercles being dead white. *Apex* none, the top being slightly bent back and the entire tip removed. *Slit*: a small round hole in the very top, with slightly irregular sides. *Margin* very thin; the sides are almost straight or a little bent in, and the breadth is very slightly greater behind than before. *Inside* quite glassy; there is no anterior furrow, and the straight concave-edged septum runs far down the shell parallel, and very near to the posterior wall, thus cutting off a long sheath-like process. L. 0.13. B. 0.08. H. 0.12.

This is a most exceptional and peculiar little species, quite unlike any other known to me.

Fam. COCCULINIDÆ, *Dall.*

Gen. COCCULINA, *Dall.*

COCCULINA ANGULATA, n. sp.

St. 203. Oct. 31, 1874. Lat. 11° 7' N., long. 123° 7' E. Philippines. 20 fms. Mud.

Shell.—Small, thinnish, with a strongish membranaceous epidermis, compressedly patelliform, oval, with a long convex anterior slope, a short slightly concave posterior slope, while the compressed side slopes are very steep and very slightly convex;

there is a blunt reverted tip, but no embryonic shell; the surface is rayed with five smooth, rounded, unequal riblets. *Sculpture*. Longitudinals—from the top proceed radiating riblets, which are regular, delicate, well rounded, raised and unequal, a few being a little stronger than the rest which, to the number of two to four, closely occupy the intervals. Spirals—these are microscopic, rounded, close-set, and very faint. *Colour*: under the strongish, hard, membranaceous, pale brownish epidermis the shell is porcellaneous white. *Apex*: the embryonic apex has been removed, and a scarred plug at the very top of the back slope fills the hole it left. *Margin* thin and broken, and overlapped by the epidermis. *Inside* porcellaneous, delicately fluted, open to the apex, with a strongish horse-shoe scar, with two oval muscular impressions, and the prominent head-scar shaped like that in *Patella*, only somewhat larger in proportion. L. 0·13. B. 0·07. H. 0·07.

I dissected the animal of this species with great care, but not much satisfaction, the specimen being extremely small and necessarily somewhat damaged by preservation in spirit. No eyes could be seen; but as their absence on the surface is sometimes due to a power of internal withdrawal, I looked for them carefully during dissection, but in vain. There were no appendages to the side of the foot or on the mantle-edge, a feature on which Mr. Dall dwells in establishing the genus. He describes the branchia as a single asymmetrical gill, but plumose. In the 'Challenger' species there was no appearance of a plume, but a somewhat stumpy finger-shaped process projected backward from the lower right side of the neck; and from the side of this process another, very much smaller, issued in the same direction. The surface of both these (and of them alone) was finely tessellated or beaded; and in each bead there seemed to be the loop of a blood-vessel. The dentition is, as Mr. Dall observes, very like that of *Scutus australis*, Quoy, given in Gray's 'Guide,' p. 163, so far, that is, as general arrangement and relation is concerned; but in *Cocculina angulata* the centre tooth is higher and narrower, with a much smaller cusped point, and is shouldered at either side; the three following laterals on either side in form and position are like those given by Gray at p. 190 (not p. 172), f. 103, as those of *Lepeta cæca*, only that the inmost one has three, the second two, and the third one cusp. Thus far, therefore, Gray's figure of *Lepeta cæca*, p. 190, agrees better, so far as it goes, with the toothing of *Cocculina angulata*; but beyond the

three small laterals occurs a single largish bicuspid tooth, not nearly so formidable a weapon as that of *Scutus australis*, which is enormously larger, more curved, and tricuspid. Beyond these, as in Gray's figure, but very much more numerous and more crowded, are an infinity of small hooked laterals. Attaching very little value to systems of classification of Mollusca based on dentition, I should have hesitated to follow Mr. Dall in separating this group from *Lepeta*; but there is one fact which probably is a sufficient reason for a step otherwise much to be deplored, viz. that in *Cocculina* the long slope of the shell is in front, a feature which the genus shares with *Propilidium* in common with the whole of the "Fissured Limpets," and which contradicts the common rule for the unfissured Limpets, that the short slope is in front.



Dentition of *Cocculina angulata*, Wats., highly magnified.
